

**Before the  
Federal Communications Commission  
Washington, D.C., 20554**

In the Matter of	)	
	)	
Implementation of Section 224 of the Act;	)	WC Docket No. 07-245
Amendment of the Commission's Rules and	)	
Policies Governing Pole Attachments	)	RM-11293
	)	RM-11303
	)	

**DECLARATION OF WILFRED ARNETT**

1. My name is Wilfred ("Wil") Arnett. My experience in joint use and pole attachment issues spans almost 42 years. I consider myself an expert in joint use and pole attachment matters, including, but not limited to, operational matters, design of traditional ILEC facilities, and the evolution of joint use rate methodologies. This testimony is based on my personal knowledge and professional experience. I offer this testimony to address the relationship between electric utilities ("ELCOs") and incumbent local exchange carriers ("ILECs") and to respond to certain comments and testimony offered by AT&T and other ILECs.

**PROFESSIONAL BACKGROUND AND EXPERIENCE:**

2. I am currently the president of RASR Associates, LLC ("RASR") a company specializing in joint use and pole attachment consulting which provides consulting services to investor-owned electric utilities ("IOU's"), electric cooperatives and municipally-owned power providers. My clients range from very small municipal and cooperative power providers to regionally owned IOUs serving millions of customers. I provide advice regarding pole attachment issues, contract interpretation, contract negotiation assistance, rights of way assistance, and various other consulting services.

3. Prior to working with RASR, I managed joint use (among other duties) for a three-state region of BellSouth Telecommunications, Inc. ("BST"). I began working with Southern Bell in 1966, and for the next twenty-one years primarily dealt with the construction, operation and design of outside plant facilities, compliance of these outside plant facilities with Southern Bell's construction, transmission, and operating standards, and joint use relations in numerous areas in Georgia and Alabama. A more complete description of my job duties from 1966 to 1987 is attached hereto as Exhibit A.

4. In 1987, I moved to Atlanta to manage joint use and third-party pole attachment agreements, rights of way acquisitions (including management of eminent domain proceedings), engineering and rights of way contract labor agreements, and was a State Department of Transportation ("DOT") and Federal Highway Administration liaison for the North Sector (Georgia, South Carolina and North Carolina) of BST. In that capacity, I negotiated joint use agreements between BellSouth and investor-owned utilities, electric cooperatives, and municipal power providers in Georgia, South Carolina and North Carolina.

5. I represented BST on the Transportation Research Board of the National Academy of Sciences (Committee A2A07-Utilities) from 1988 through 1994. In 1987, I was elected President of Georgia Chapter 22 of the International Right of Way Association ("IRWA"), and was selected as Right of Way Professional of the Year. In 1990, I was elected as Region 6 Chairman (Florida, Georgia, South Carolina, North Carolina, Alabama and Mississippi) of the IRWA. I worked closely with BellSouth's State Management and Legal Departments in Georgia, North Carolina, and South Carolina to manage matters related to pole attachments, rights of way, contract labor agreements, and DOT coordination. In addition to the above duties, I was responsible for training of field forces

and managers in Georgia, South Carolina and North Carolina, on policies and procedures relative to joint use and the use and occupancy of public and private right of way. My organization had offices, and employees, in Atlanta, Georgia, Columbia, South Carolina, and Charlotte, North Carolina, that were responsible for the functions itemized above.

6. In 1995, I joined BellSouth Entertainment/BellSouth Broadband ("BSE"), to assist in the deployment of video dial-tone in Atlanta and several other locations within the BellSouth 9 state territory. In that capacity, I was responsible for outside plant design and construction to support video dial-tone projects, rights of way acquisition for the new facilities, and coordination of joint use matters, including all makeready activities necessary for the construction of the BSE's new hybrid fiber-coaxial networks to facilitate BellSouth's re-entry into video services with a new service model that combined switched services with video services .

7. In 1996, after completion of the initial construction for BSE's Chamblee Video Dialtone Field Trial for BSE, I retired from BellSouth after 30 years of service. That same year, I joined Universal Field Services (a Tulsa, Oklahoma right of way company) and Universal Ensco (a Houston, Texas professional engineering company), as Vice President. In that capacity, I was responsible for business development in the Southeast USA from their Atlanta office. I managed consulting right of way services and consulting engineering design services for several utilities, including communications companies, cable television companies and electric providers, mostly in Georgia.

8. In 1997, I resigned from the Universal companies and joined Utility Support Systems, Inc. ("USS"). USS provides engineering design, inspection, outside plant construction and rights of way services to IOUs, electric transmission companies, electric cooperatives, municipal power

providers and communications companies, primarily in the southeast USA. USS is registered as a professional engineering company in 11 southeast states. Among other services, USS currently administers joint use and third party pole attachment agreements for IOUs, electric cooperatives and municipal power providers in 8 southeastern states. I presently serve as Executive Vice President of USS.

9. In 1998, in addition to my duties at USS, I joined with two business associates and incorporated RASR. RASR's clients include more than 14 investor-owned utilities, 90 electric cooperatives, and 40 municipal electric distribution providers in more than 12 states. All totaled, RASR represents electric companies that own more than 10 million distribution poles.

10. I have nineteen years of negotiations experience with Federal, state and local agencies and railroad, common carrier, CATV and electric utility companies and I am experienced in dealing with utility agreements, engineering and construction contracts and other issues that directly impact utility operations, revenues and costs.

**PURPOSE OF THIS TESTIMONY:**

11. The purpose of my declaration is to address the joint use relationship between ILECs ELCOs, and specifically to address the ILECs' allegations about the "changed circumstances" that they claim warrant reversal of 100 years of history; to address errors and misleading statements in testimony of AT&T witnesses Veronica Mahanger MacPhee ("MacPhee") and Philip Jack Gauntt ("Gauntt").

12. Prior to forming my opinions contained herein, I reviewed the following:

- the comments filed by AT&T in this proceeding as well as the declarations of Gauntt and MacPhee;

- Hundreds of ARMIS documents filed by the AT&T Operating Companies (or their predecessors) from 1996 through 2007, in particular, those ARMIS Reports that document the true change in the type of outside plant facility networks being deployed by AT&T and documented in the ARMIS reports of AT&T's Outside Plant Statistics;
- A vast assortment of historical documents published jointly by the Edison Electric Institute and AT&T that relate to the development, deployment and coordination of joint use;
- Extensive historical documents published by the Rural Electric Administration ("REA"), including the original contracts for joint use published jointly by REA and Western Electric on behalf of AT&T; and
- Numerous joint use contracts, both historical and current, including many originally executed in the 1920's between local telephone companies and electric companies, primarily IOUs, and
- The Bellcore Blue Book Manual of Construction Procedures and the AT&T Outside Plant Engineering Handbook.

#### **SUMMARY OF OPINIONS:**

13. Contrary to AT&T's claims, the basis for the joint use relationship has not changed since its inception nearly 100 years ago. Commission interference in the joint use relationship will not stimulate the deployment of Broadband service. Contrary to AT&T's claims, ILECs do not require less space today and the joint use relationship is not out of balance such that the Commission should subsidize pole rental rates for ILECs.

#### **JOINT USE BACKGROUND:**

14. There is a historic and unique relationship between the incumbent ELCO and the

ILEC dating back almost a century. The basis for the joint use relationship has not changed. Today, as in the 1920's, there is only one ILEC and one ELCO serving a given territory. The ILEC is still considered the carrier of last resort in its certificated area. Therefore, the ILEC must serve, within its service area (subject to its tariffs and franchise requirements), any request for traditional telephone service. (*See* state maps of the certificated ILECs for the Southern Company Operating States attached hereto as Exhibit C.) This same requirement exists for the ELCO assigned that territory. In every case, both the ILEC and the ELCO are required to provide their respective services to their customers in their overlapping service territories. Because of this shared commitment, the ILEC and the ELCO have a unique opportunity and a vested interest in joint use as a means of reducing their overall cost of service. They are essentially locked into a joint use relationship because of their common service territory and customer base. This shared common service territory, and the obligation (not choice) to serve the entire area, drives the joint use relationship that has provided economies for both the ILEC and the ELCO for almost a century. On the other hand, the overwhelming majority of the geography within the United States does not have CATV or CLEC service, simply because it would not be profitable for those companies, and they are not required to serve. They provide their respective services by choice, subject to their ability to achieve the rate of return demanded by their investors. If a given territory does not provide a satisfactory rate of return, both the CLEC and CATV provider can dismantle their facilities and cease to serve an area. That is not the case for either the ILEC or the ELCO.

15. The declaration of MacPhee, AT&T's witness, states that the original joint use agreements contemplated only two parties on the pole, specifically the ILEC and the ELCO. While it is true that in the 1920's and 1930's, ILECs and ELCOs were the predominant pole owners, there

were numerous other parties on the poles then, as there are today. Further, the original joint use agreements contemplated third party attachments, and included provisions specifically addressing the “rights of other parties” as evidenced by the drawings (“Plates”), attached hereto as Exhibit D, jointly developed by EEI and AT&T and published in the 1930’s. These Plates indicate accommodations for the ELCO and the ILEC, but also such items as “trolley system” conductors, “street lighting systems”, and “signal light systems.” Additionally, “fire alarm” circuits and “police alarm” circuits were common attachments to joint use poles in the 1920’s and through the 1950’s.

16. Perhaps the most important feature of joint use contracts however, is the recognition that either party may, from time to time, require more than its “normal space”. Under joint use agreements, the party that requires additional space typically incurs only the “incremental costs” of providing that space, but does not incur any additional rental expense. Joint use agreements embrace “per pole” rental provisions instead of “per attachment” rentals. Per pole rentals, along with no restrictions on how much space either party may use, create significant value for both joint users. These favorable provisions also drive the necessity that each party provides it appropriate share of joint use poles, or pays a rental rate (often called an “adjustment rate”) that more adequately compensates the predominant owner for installing and maintaining the excess joint use poles.

#### **BROADBAND DEPLOYMENT:**

17. Interference by the Commission with the joint use relationship, a relationship which has evolved over the last 100 years, will not stimulate deployment of Broadband service by the ILEC. Over my service career in the telephone industry, I participated in many important service evolutions for what is now AT&T. Among those were (1) the retirement of open-wire toll (long distance) lines, (2) the replacement of Step and Crossbar Central offices with Electronic Switches,

(3) the Party-line elimination program (elimination of 8-pty, 4-pty and 2-pty service), (4) open-wire elimination programs, (5) analog to digital conversions and implementation of subscriber carrier in the local loop, and (6) the deployment of fiber optic cables in the long distance, trunk and local loop, among others. ILECs undertook all these programs, often with the “encouragement” of state commissions, to improve the quality of service to its regulated customer base. Similarly, all those programs increased revenues and/or reduced operating costs. None of these programs were dependent on a reduction in the pole attachment rates charged to AT&T by its joint use partners.

18. Deployment of broadband services is no different from the above referenced service upgrades. In fact, broadband deployment provides a unique opportunity for the ILEC. It allows the ILEC to expand its services. Deployment of broadband service is no different than the ILEC’s ability to provide long distance calling services. Broadband expansion by the ILEC does not require access to new ELCO poles; instead it may require either a modification, or reinforcement of the ILEC’s existing facilities already attached to existing poles. The market rate for those services, not a modification to the “joint use” relationship, is an appropriate incentive. No subsidy is required for the ILEC to expand into new markets.

19. The ILEC’s pole attachment costs are currently “fixed costs” in their “costs of service” model. The ILEC’s ability to now provide added services, and subsequently increase revenues, with the same facilities and with the same fixed costs, should drive the deployment of broadband services. Assertions that pole attachment fees slow broadband deployment, when those costs are already a part of the “cost of service” model are unfounded. It would be equally unreasonable to argue that increased pole rentals would slow the deployment of “touchtone service”, or “call waiting” or any other premium service that can be provided over an ILEC’s existing outside

plant facilities.

**POLE USAGE:**

20. AT&T's witness MacPhee also claims that ILECs no longer require the same space that they did in the early days of joint use. AT&T contends that (1) its network has evolved over the years from open wire facilities, which were the basis for its initial joint use relationship, to a network presently composed of fiber optic cables, and that (2) because of fiber optic facilities, the ILEC today "requires less space" on poles. However, AT&T did not transition its network from open copper wire to insulated fiber optic cables. The evolution actually progressed from (1) open and insulated wires on poles (which were targeted for elimination 40-50 years ago and are now generally dismantled), to (2) insulated cables containing numerous twisted copper pairs and an external outer sheath and often weights of several pounds per foot (which is still the predominant method used by AT&T to provide distribution service), to (3) digital carrier on twisted copper pair cable (either reconditioned existing cables or new "screened" copper cables, primarily for trunk cables and to feed local subscriber carrier), to (4) new fiber optic cables in the long distance and trunk networks and later to feed local subscriber carrier. See Exhibit E from AT&T's Outside Plant Engineering Handbook.

21. There is one further evolution that warrants discussion. In many locations, AT&T has constructed and currently operates (5) hybrid fiber coaxial cables and networks with which it competes openly with the local CATV provider. Items 2 through 4 above are still in use, and growing, as the ARMIS records indicate, in all of AT&T's operating companies within the Southern Company footprint, while item 5 is in limited use in specific metropolitan areas of the Southern Company footprint. Where AT&T once provided service through a simple open-wire network on

joint use poles, it now occupies those same joint use poles with (1) covered aerial wires, both “drop” wires and long-span “rural” wires (2) copper cables providing traditional analog service (normally for customers within 15.5 kilofeet, or approximately 3 miles, of the central office), (3) copper cables with digital service feeding subscriber carrier locations, (4) fiber optic cables carrying optical signals, and in many cases, (5) coaxial cables providing video services. Additionally, where joint use was originally confined to the upper portions of the pole, today ILECs install the following (1) pedestals for buried cables, (2) carrier equipment, (3) pole mounted distribution terminals, (4) cable risers, (5) station protectors, (6) service wires, and (7) all other nature of equipment at the base, and in the climbing space, of joint use poles. See Photos of AT&T facility deployments in Exhibit F

22. More importantly, where the ILEC has installed large copper cables, mid span sags require the ILEC to attach its facilities much higher on joint use poles, thereby increasing the required space for the ILEC on joint use poles. Attached hereto as Exhibit G are photographs taken of Georgia Power Company’s joint use poles in northwest Georgia showing the increased mid-span sag due to the ILEC’s installation of large copper cables under normal conditions. Additionally, AT&T’s own sag charts, attached hereto as Exhibit H show the anticipated sag for that same type of cable under ice loading. The placement of large copper cables not only consume significantly more of the vertical space on joint use poles, but also consume a disproportionate share of the “structural” capacity of utility poles. Calculations, using pole loading software, for the above described pole indicate a “Horizontal Load” equivalent to 34% of the structural strength of the pole for Electric Utility Pole and one catv attachment. When AT&T’s aerial cable is included in the calculations, the horizontal pole load more than doubles to 72% of the structural strength of Georgia Power’s pole. See calculations attached hereto as Exhibit L.

23. If, as AT&T suggests, it was retiring copper wire in favor of fiber optic cable, there would be a corresponding reduction reports in its ARMIS reports. There is no such reduction. Attached hereto as Exhibit I is a summary of AT&T's aerial facilities for both 1996 and 2007 in the Operating Companies' footprint (Alabama, Florida, Georgia, and Mississippi) as well as nationally. One can readily see that the amounts of aerial copper cable, aerial fiber cable, aerial coaxial cable, and even aerial covered wire (for those areas that report this info in ARMIS - apparently not all AT&T areas report numbers for aerial covered wire) has increased substantially in the past 11 years. As evidenced by the attached consolidated ARMIS reports of AT&T aerial facilities, there have been increases of 51,853 km and 66,882 of aerial copper and fiber optic cables by AT&T since 1996. During this same period of time, AT&T's pole ownership has declined by approximately 1.31%, indicating that AT&T has installed significant amounts of new aerial facilities on ELCO poles.

24. There is no reduction in AT&T's aerial cable facilities, and certainly no physical reason for AT&T to claim it now needs less space on joint use poles. In general, because of the use of (1) copper distribution cables exhibiting significant mid-span sag, (2) fixed count terminals and (3) pole-mounted hardware, the ILEC today probably requires more space on poles than it did in the 1920's. Further, large aerial copper cables installed by the ILEC and their other aerial attachments consume a huge percentage of the fiber strength of traditional wooden distribution poles and pose significant risks under wind and ice storm loading. In short, ILECs are "using" more of the poles — not less.

**OWNERSHIP IMBALANCE:**

25. AT&T also contends that the joint use relationship has become irreversibly "out of

balance” because the ELCO is usually the first to receive a request for service from developers and because ELCOs must be the first to respond to restore damaged poles during natural and manmade emergencies. AT&T states that due to the nature of their respective services, and the timing of service request, the ILEC is now unable to maintain parity. While it is generally true that developers desire to have electric service available for construction, it is misleading to imply that the developer does not notify the ILEC until some later time. Generally, both incumbents are notified at the same time by developers.

26. If overhead distribution construction is selected for new developments, either incumbent has an equal opportunity to install the new poles. Further, in order to more easily share the costs of new line construction, many ELCOs and ILECs have entered into joint pole setting agreements, with the ELCO installing poles on behalf of the ILEC (and charging the ILEC the cost). Under such arrangements, parity is more easily maintained. Perhaps more important however, is that today the vast majority of poles are not installed to serve new development, but rather to replace existing poles. The majority of pole installations today are for poles that are either in conflict with public projects, or simply deteriorated and require replacement for safety and reliability reasons. The ILEC, by assuming responsibility for “maintenance” pole replacements and replacement poles on public projects, such as highway improvements (both of which are normally handled as planned and budgeted projects) could regain and maintain parity (if it so chose) – and therefore incur no rental expense for pole attachments.

27. AT&T claims that the ELCOs desire to own all poles replaced because of emergencies, natural disasters, and in cases where the ILEC cannot, or will not provide timely pole replacements for new services. ELCOs have disincentive to assume ownership for all replacement

poles under emergency conditions - especially during natural disasters, as those are the most expensive pole replacements that any utility ever undertakes. Typically those pole replacements require “overtime” labor and special construction techniques for after-hour operation, both of which increase costs. Further, during natural disasters, additional expenses for imported labor and related travel costs are incurred. No joint use rental rate in existence today can properly compensate a utility for poles installed during emergency conditions. The real reason for today’s imbalance in ownership is not related to the nature of the respective services, but is in fact related to economics. It is simply cheaper for the ILEC to rent than to own poles.

28. AT&T further implies that the ELCOs are driven to own all the joint use poles because of the rental from the proliferation of foreign attachments. This is counter-intuitive because if AT&T believes that third party rents represent an incentive (or windfall) favoring pole ownership, AT&T would be aggressively involved in the installation, as opposed to a reduction, of joint use poles.

29. AT&T is one of the largest pole owners in the nation. As a pole owner, AT&T is intimately familiar with the costs of owning, operating and maintaining poles. In fact, AT&T testimony with respect to the costs of providing access to poles, is a matter of record in the Unbundled Network Elements Hearings, in numerous states, and on a number of occasions. During those 1996 – 1997 proceedings, AT&T’s witnesses provided testimony and supporting calculations for costs in excess of \$20.00 per foot of space on AT&T poles. Copies of the record, from Georgia, Mississippi, and Louisiana Public Service Commissions, are attached as Exhibit J. AT&T’s cost studies calculated a recurring annual cost, per foot, for access to poles of \$20.46, \$20.67 and \$20.09 respectively for those 3 AT&T operating states. These are based on ILEC costs which, as AT&T

concedes, are generally lower than ELCO costs. It is also important to note that AT&T's testimony regarding "attachment costs" are now almost 12 years old. By updating the data using the Handy Whitman Index to reflect cost increases for poles, AT&T's costs today would be \$27.39, \$27.67 and \$26.90 per foot of space on poles.

30. Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the facts set forth in this declaration are true to the best of my knowledge.

Executed on the 22<sup>ND</sup> day of April, 2008.

A handwritten signature in black ink, appearing to read 'Wilfred Arnett', written over a horizontal line.

Wilfred Arnett  
RASR Associates, LLC

# EXHIBIT A

### COMPLETE DESCRIPTION OF JOB DUTIES FROM 1966 TO 1987

I began my working career with Southern Bell in 1966 in Savannah, Georgia as an outside plant technician. In that capacity, I was trained as a craftsman in outside plant safety standards, and cable and wire construction, maintenance, and repair. In 1968, I was promoted into the Outside Plant Engineering Department in Savannah as a junior engineer. In that capacity, I was responsible for distribution engineering and cable television makeready for 4 rural exchanges. In order to effectively perform this function, I attended numerous Southern Bell centralized classes and completed Company correspondence courses, all of which were related to the design of outside plant facilities. The courses included, among other topics, pole line design, aerial, buried and underground cable, as well as underground conduit.

In 1969, I was promoted to Assistant Engineer in the Outside Plant Engineering Department in Savannah. In that capacity, I was responsible for large project submittal, long range planning, and preparation of construction work plans for the Savannah District. In order to effectively perform this function, I attended additional Southern Bell centralized classes and completed correspondence courses related to the design of outside plant facilities, engineering economics and analog and digital carrier design. Additionally, I participated in the inventory of a cable television system constructed and owned by Southern Bell in Brunswick, Georgia prior to an FCC required sale to a non-Southern Bell provider.

In 1971, I was transferred from Savannah District to the Engineering Department in Dublin, Georgia, a sub-district engineering office in the Valdosta, Georgia District. In Dublin, I was responsible for large project submittal, long range planning, and preparation of construction work plans for 13 exchanges in central Georgia as a part of the Valdosta District. The projects consisted

of pole line construction and aerial, buried and underground cable construction. In 1971, Southern Bell was in the midst of a program to eliminate 8-party service in Georgia. In 1972, I was promoted to Engineering Associate, a second-level engineering position in the Dublin Sub District. In addition to my prior job duties, I assisted the Supervising Engineer with special projects and was in charge of the office in his absence.

In 1973, I was transferred to Southern Bell's Georgia-Outstate Engineering Staff in Atlanta. In that capacity, I was responsible for the engineering review, prior to approval for funding, of all major outside plant engineering projects for 9 Outside Plant Engineering districts. It was my responsibility to insure that the proposed projects were economically designed and complied with all Southern Bell construction standards and transmission requirements. Additionally, I participated in Company Headquarters Operational Reviews of all Outstate Engineering Districts to insure that each district was in compliance with Southern Bell and AT&T Operating Practices and Standards. In 1973 I became a member of Georgia Chapter 22 of the American Right of Way Association.

In 1974, I was transferred to Southern Bell's Georgia-Outstate Construction Staff as a Staff Supervisor in Atlanta. In that capacity, I was responsible for the Outstate Outside Plant Maintenance Budget. Additionally, I supported the 9 Outstate Construction Districts with contract matters, conformance testing, and other operational matters. I supported the Division Construction Manager who had responsibilities for the Outstate Area. Additionally, I participated in Company Headquarters Operational Reviews of all Outstate Construction Districts to insure that each district was in compliance with Southern Bell and AT&T Operating Practices and Standards.

In 1975, I assumed the responsibilities of Supervising Engineer in Carrollton, Georgia. In that capacity, I managed the engineering and loop assignment staff, and had responsibility for

various engineering and rights of way functions, service order assignment, and long range planning for 8 exchanges in the Rome District of Southern Bell. I was also responsible for joint use relations for an 8 county territory in Georgia and Alabama. I continued to participate in Georgia Chapter 22, serving as the newsletter editor, secretary, treasurer and in 1986 as Vice President. For 3 years, while serving as Supervising Engineer, I also participated as a staff member, and later staff leader, on BellSouth's Engineering Selection Program (ESP). ESP was a four-state (Florida to North Carolina) assessment program to evaluate "non-management" craft employees and recommend successful candidates for promotion to management positions in the engineering department.

## EXHIBIT B

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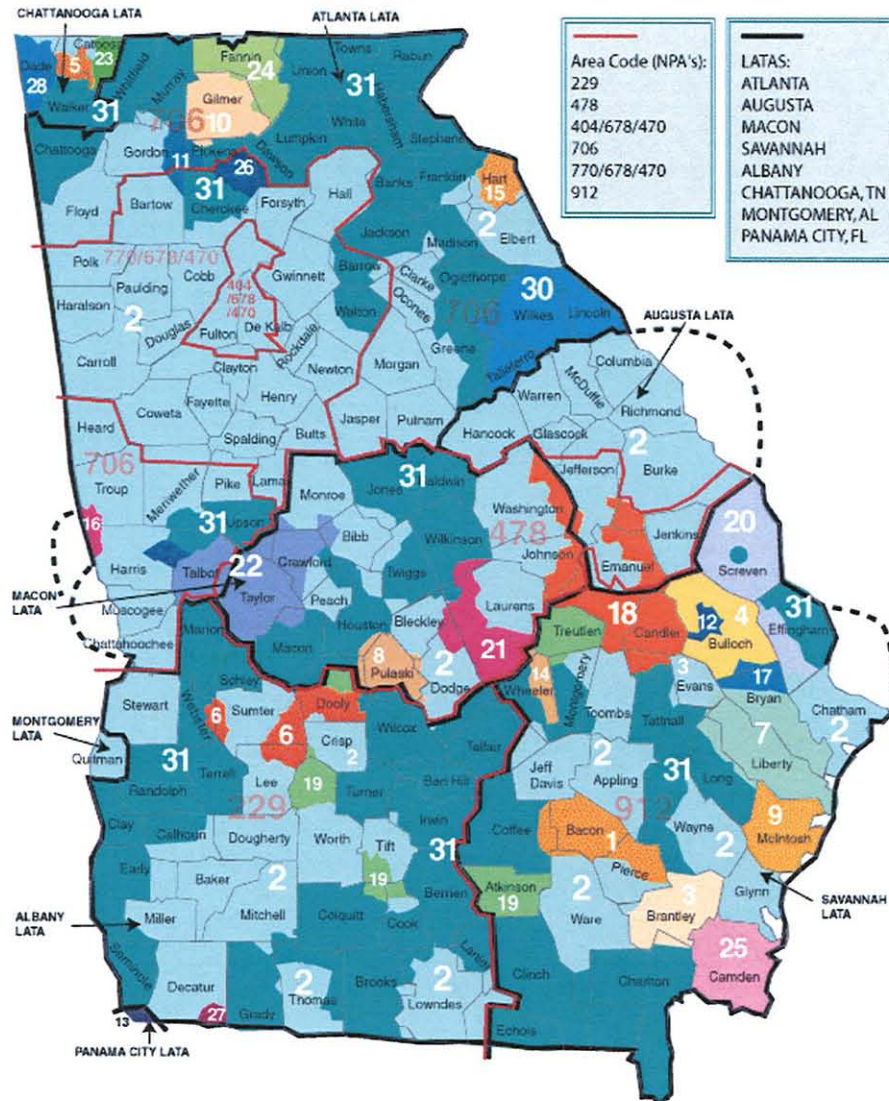
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## EXHIBIT B

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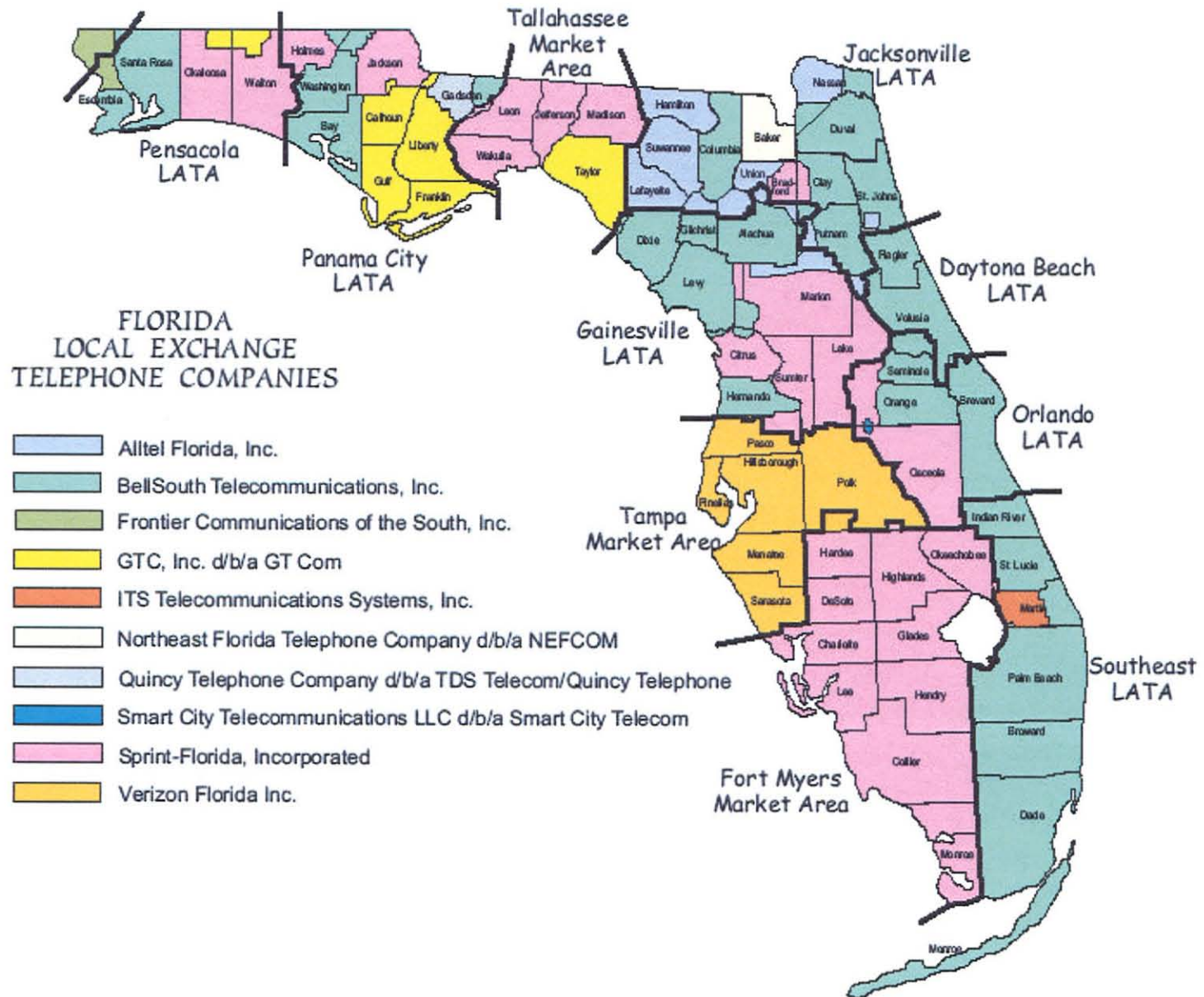
# **EXHIBIT C**

# Georgia Telephone Companies

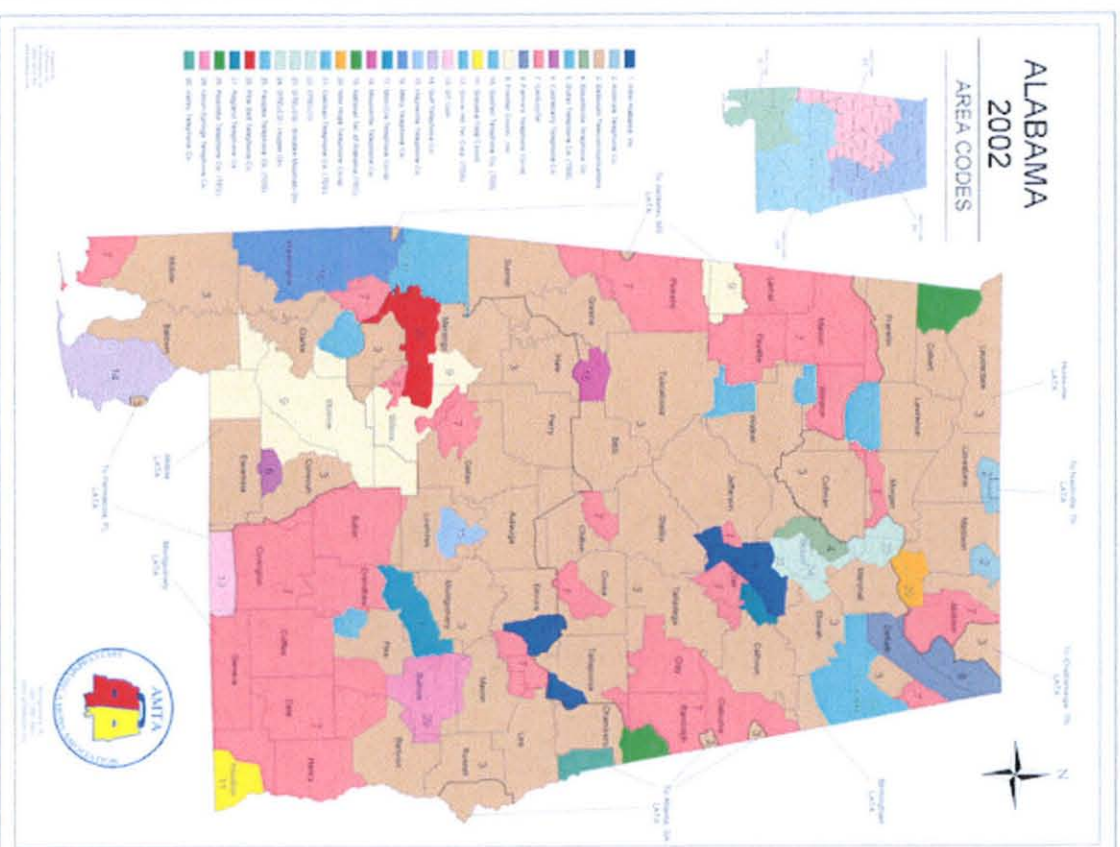
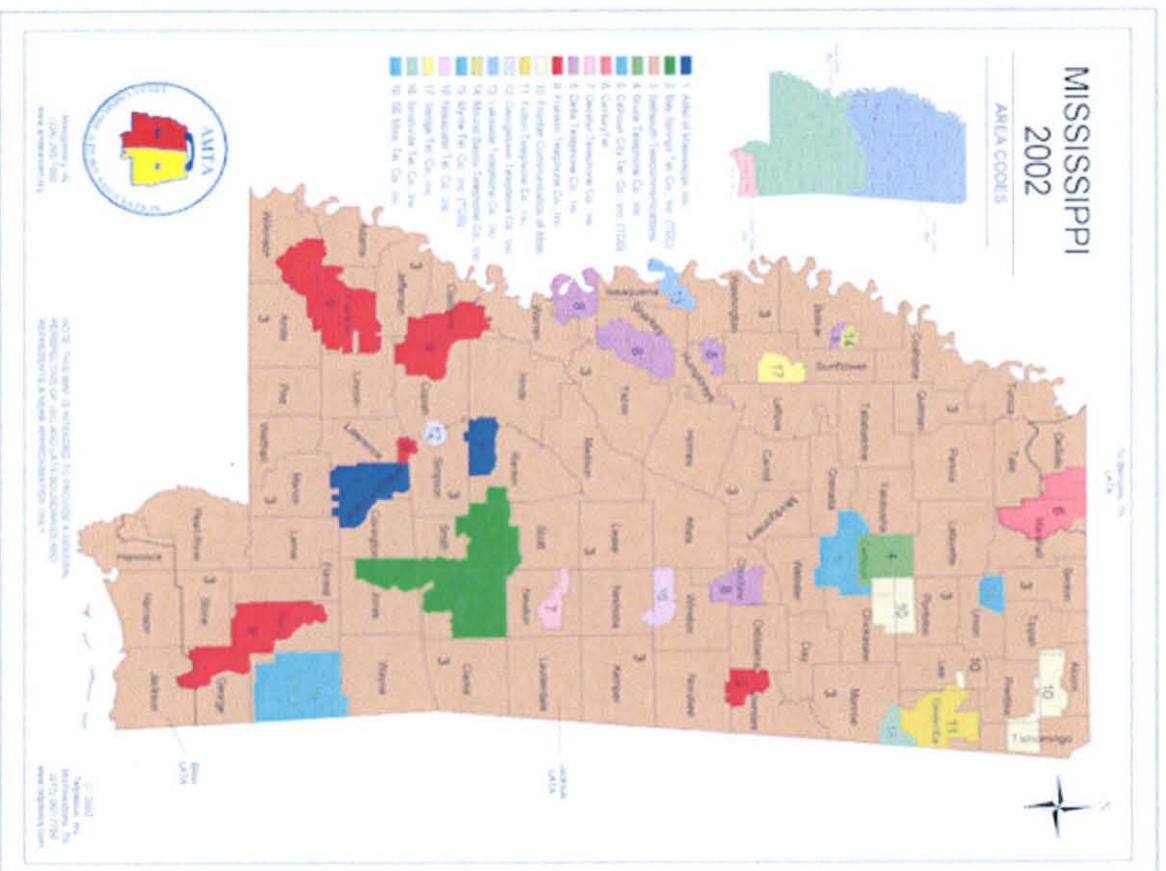


Company	Company Name	Company	Company Name
1	<a href="#">Alma Telephone Company, Inc.</a>	17	<a href="#">Pembroke Telephone Company, Inc.</a>
2	<a href="#">BellSouth Telecommunications, Inc.</a>	18	<a href="#">Pineland Telephone Cooperative, Inc.</a>
3	<a href="#">Brantley Telephone Company, Inc.</a>	19	<a href="#">Plant Telecommunications</a>
4	<a href="#">Bulloch Telephone Cooperative, Inc.</a>	20	<a href="#">Planters Telephone Cooperative, Inc.</a>
5	<a href="#">Chickamauga Telephone Corporation</a>	21	<a href="#">Progressive Rural Telephone Co-Op., Inc.</a>
6	<a href="#">Citizens Telephone Company, Inc.</a>	22	<a href="#">Public Service Telephone Company</a>
7	<a href="#">Coastal Communications</a>	23	<a href="#">Ringgold Telephone Company</a>
8	<a href="#">Comsouth Telecommunications, Inc.</a>	24	<a href="#">TDS Telecom / Blue Ridge Telephone Company</a>
9	<a href="#">Darien Telephone Co., Inc.</a>	25	<a href="#">TDS Telecom / Camden Telephone Company</a>
10	<a href="#">Ellijay Telephone Company</a>	26	<a href="#">TDS Telecom / Nelson-Ball Ground Telephone Company</a>
11	<a href="#">Frontier Communications of Fairmount (A Citizens Communications Company)</a>	27	<a href="#">TDS Telecom / Quincy Telephone Company</a>
12	<a href="#">Frontier Communications of Georgia (A Citizens Communications Company)</a>	28	<a href="#">Trenton Telephone Company, Inc.</a>
13	<a href="#">GT Com</a>	29	<a href="#">Waverly Hall Telephone, LLC.</a>
14	<a href="#">Glenwood Telephone Company</a>	30	<a href="#">Wilkes Telephone &amp; Electric Company</a>
15	<a href="#">Hart Telephone Company</a>	31	<a href="#">Windstream Communications</a>
16	<a href="#">Interstate Telephone Company</a>		

# Florida Telephone Companies



# Mississippi & Alabama Telephone Companies



## **EXHIBIT D**

## **EXHIBIT D1**

**SPECIFICATIONS  
FOR THE  
CONSTRUCTION AND MAINTENANCE  
OF  
JOINTLY USED WOOD POLE LINES  
CARRYING SUPPLY AND COMMUNICATION CIRCUITS**

A Report of the Joint Committee on Plant Coordination of the  
Edison Electric Institute and the Bell Telephone System

**RECEIVED**

JAN 29 1937

REFERRED \_\_\_\_\_ NOTED \_\_\_\_\_

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**SUMMARY**

These specifications are based on Part Two, Fourth Edition of the National Electrical Safety Code, with such additions and changes as are necessary to meet new conditions and to take account of increased knowledge of joint use matters. They are recommended for field trial. Where necessary, approval for such trial should be obtained from the proper administrative authorities.

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**EDISON ELECTRIC INSTITUTE  
420 Lexington Ave., New York, N. Y.  
AMERICAN TELEPHONE AND TELEGRAPH COMPANY  
195 Broadway, New York N. Y.**

January 6, 1937

MEMBER COMPANIES OF THE EDISON ELECTRIC INSTITUTE:  
ASSOCIATED COMPANIES OF THE BELL TELEPHONE SYSTEM:

We are forwarding herewith a copy of a report covering the construction and maintenance of jointly used wood pole lines carrying supply and communication circuits.

The specifications embodied in this report are intended for use particularly where electric supply companies and communication companies enter into agreements for the joint use of wood poles, and we believe that they will provide a basis for the successful solution of the structural problems involved in the joint use of wood poles by supply and communication companies.

Your Committee is confident that you will receive them in the same cooperative spirit that has been evident in all of our joint undertakings.

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December 11, 1936

TO THE JOINT COMMITTEE ON PLANT COORDINATION OF THE EDISON ELECTRIC INSTITUTE AND BELL TELEPHONE SYSTEM:

Pursuant to your instructions we have prepared and are forwarding herewith Specifications for the Construction and Maintenance of Jointly Used Wood Pole Lines Carrying Supply and Communication Circuits.

Throughout the preparation of these specifications we have been assisted by the following:

Mr. H. A. ENOS, American Gas & Electric Company  
Mr. G. S. VAN ANTWERP, Philadelphia Electric Company ,  
Mr. A. B. CAMPBELL, Edison Electric Institute  
Mr. J. T. BINFORD, American Telephone & Telegraph Company  
Mr. J. W. HINES, American Telephone & Telegraph Company

We have also consulted freely with many of the operating engineers in the member companies of the Edison Electric Institute and in the Associated Companies of the Bell System, and their comments and advice have played a large part in the preparation of these specifications.

The former Engineering Subcommittee of the Joint General Committee of the National Electric Light Association and Bell Telephone System in its report covering Principles and Practices for the Joint Use of Wood Poles by Supply and Communication Companies, recommended that the National Electrical Safety Code be used as a guide to practice pending the development of complete specifications. Subsequently, one of the larger power companies and an Associated Company of the Bell System prepared specifications based on the Fourth Edition of the National Electrical Safety Code. They were assisted in this work by members of the Headquarters Staff of the National Electric Light Association and representatives of the American Telephone and Telegraph Company. These specifications were forwarded by the American Telephone and Telegraph Company to its Associated Companies for field trial and have been known in the Bell System as A. T. and T. Specifications 4864. Experience with them has been helpful in the preparation of the specifications herewith.

The attached specifications are also based on Part Two, Fourth Edition of the National Electrical Safety Code. However, a number of requirements have been added and some of the former requirements have been modified in order to meet new conditions and to take advantage of increased knowledge and experience. The degree of safety provided is in no case less than that provided by the National Electrical Safety Code and in many instances is even greater.

It is recommended that these specifications be forwarded to the member companies of the Edison Electric Institute and to the Associated Companies of the Bell System for field trial. In our opinion such a trial is the only means of determining the effectiveness of the recommended construction practices, as well as the possibility of further improvements. When necessary, approval for their field trial should, of course, be obtained from the proper administrative authorities. This procedure is in accordance with Paragraph 201A of Part Two of the Fourth Edition of the National Electrical Safety Code which reads as follows:

"The rules shall apply to all installations except as modified or waived by the proper administrative authority. They are intended to be so modified or waived whenever they involve expense not justified by the protection secured or for any other reasons are impracticable; or whenever equivalent or safer construction can be more readily provided in other ways."

(Signed) T. H. HAINES  
E. E. I. Representative

(Signed) H. L. HUBER  
Bell System Representative

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# SPECIFICATIONS

for the

## CONSTRUCTION AND MAINTENANCE OF JOINTLY USED WOOD POLE LINES CARRYING SUPPLY AND COMMUNICATION CIRCUITS

### SCOPE AND APPLICATION

---

These specifications shall apply to all construction on wood poles used jointly by supply and communication circuits and covered by the terms of the contract to which these specifications are attached. They are not to be interpreted as recommending joint use with any particular types of circuits but are provided to enable the establishment of adequate construction where the parties arrive at a decision that joint use represents the best engineering solution.

The construction requirements specified herein are based on the provisions of Part Two of the National Electrical Safety Code, Fourth Edition. It is recognized that in the development of the art, other satisfactory types of construction may be devised, and the fact that specific types are required herein does not preclude the use of others which the parties hereto may mutually agree upon as being safe and satisfactory.

These are not complete specifications but are intended to embody the minimum requirements for spacings, clearances and strength of construction which are most important from the standpoint of safety to the public, employees and plant. Conditions not covered herein shall be governed by the appropriate requirements of Part Two of the National Electrical Safety Code, Fourth Edition, or such subsequent editions as are mutually satisfactory to the parties hereto. The lawful requirements of state or local authorities shall govern where they exceed those contained in these specifications.

These specifications are divided into four parts. Part 1 covers general requirements applicable to all joint lines. Part 2 covers normal joint use construction involving communication plant and the usual types of supply distribution systems and also other supply systems which cooperative study by the parties concerned has shown to be suitable for general joint use within a given area. Part 3 covers special joint construction between communication plant and higher voltage supply circuits other than those included in Part 2. Such construction is intended for use only in those situations where it would otherwise be impracticable to avoid overbuilding. Part 4 covers joint use involving communication plant and secondary power distribution circuits or direct current street railway circuits.

### EXPLANATION OF TERMS

For the purpose of these specifications the following terms when used herein shall have the following meanings:

**Armored Cable** means a cable provided with a wrapping of metal, primarily for the purpose of mechanical protection. It does not include cables having a lead sheath without additional mechanical protection.

**Effectively Grounded** means permanently connected to earth through sufficiently low impedance having sufficient current carrying capacity to prevent the building up of voltages which under the conditions may result in undue hazard.

**Luminaire** means a complete street lighting unit consisting of a light source together with its direct appurtenances, such as globe, reflector, housing, etc., but not including bracket, mast-arm or span wire.

**Voltage (of a circuit)** means the greatest effective difference of potential between any two conductors of the circuit concerned, except that in grounded multi-wire circuits, not exceeding 750 volts between any two conductors it means the greatest effective potential between any conductor of the circuit and ground.

## PART 1—GENERAL REQUIREMENTS

### 1. APPLICATION

The requirements of Part 1 shall apply to all joint use construction.

### 2. RELATIVE LEVELS

The heights above ground at which different classes of cables, conductors and other attachments are to be located should be standardized where practicable for any given area by agreement of the utilities concerned. The relative positions of the spaces to be occupied by the various attachments, except as otherwise permitted for vertical runs, street lamps and span wires (Sections 4 and 7 of Part 2), shall preferably be from the top of the pole downward as follows, and these specifications are particularly designed on this basis: (See Plate 1.)

- (a) Supply attachments (except those in (c) below).
- (b) Communication attachments.
- (c) Trolley contact conductors and associated feeders.

Note: Where it is impracticable to locate communication cables or conductors below supply line conductors of the type covered in (a) above, special consideration shall be given to the clearances, insulation and strength of construction necessary to provide adequate safety. For example, in such situations communication line conductors should meet the mechanical strength requirements for the highest voltage supply conductors above which they are placed, unless this voltage is less than 750.

Supply apparatus such as regulators, lightning arresters, switches, potheads, etc., shall preferably be located above communication attachments except where operating conditions make other location necessary. Supply transformers shall be located above communication attachments except in cases where their size or weight makes such location impracticable. (See Plates 3 and 9.)

Where apparatus such as the above is located below the communication space it shall be mounted outside of the climbing space, with all exposed metal parts of such apparatus effectively grounded or suitably covered or protected from accidental contact, and where practicable shall be mounted on the street side of the pole.

### 3. LOADING

The National Electrical Safety Code contains a map showing three loading districts designated as heavy, medium and light. Unless otherwise agreed to, the loading districts shown on that map, and the corresponding loadings prescribed for conductors and supporting structures, shall be used as a basis for design.

### 4. INDUCTIVE COORDINATION

The Principles and Practices adopted by the Joint General Committee of the National Electric Light Association and Bell Telephone System dated December 9, 1922, and subsequent modifications thereof, shall be followed.

### 5. SIGNAL LIGHT INSTALLATIONS

Signal lights may where necessary be placed at the top of poles, provided the installation meets the requirements of these specifications with respect to clearances, vertical runs, etc. (See Plate 17.)

### 6. GROUND CONNECTIONS

The same grounding wire or artificial ground shall not be used for supply and communication attachments except where mutually agreed upon.

### 7. POLE STEPS

#### (a) Permanent Metal Steps

Permanent metal steps shall not be placed on poles at a height less than 6½ feet from the ground or other readily accessible place. (See Plate 9.)

#### (b) Wood Blocks

One wood block may be placed on poles at a height not less than 3½ feet from the ground or other readily accessible place. (See Plate 9.)

PART 1—SECTION 7. POLE STEPS (CON'T)

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(c) Detachable Steps

Where detachable steps are used at points less than  $6\frac{1}{2}$  feet from the ground or other readily accessible place, the parts permanently attached to the pole shall be constructed so that these parts alone cannot be used effectively in climbing the pole.

8. PLATES

The plates accompanying these specifications are illustrative only. They do not cover all types of construction, but show a number of typical arrangements.

Note: In some areas it has been found advantageous to measure all vertical clearances from a reference gain or point on the pole. In such areas the plates herewith may be revised by mutual agreement to accord with this practice.

## PART 2—NORMAL JOINT USE CONSTRUCTION

### 1. APPLICATION

The requirements of Part 2 shall, in addition to those in Part 1, apply to all joint use construction involving communication cables or conductors and supply cables or conductors of the following types:

#### (a) Supply Conductors

1. Constant potential alternating current supply circuits normally operating at voltages between 750 and 5,000 volts between conductors and not over 2,900 volts to neutral or ground.
2. Constant current supply circuits of not more than 7.5 amperes regardless of the voltage, and of more than 7.5 amperes where the open-circuit voltage of the supply transformer is not more than 2,900 volts.
3. Any other supply circuits (regardless of voltage or current) which the parties concerned mutually agree are satisfactory for general joint use within a given area.

#### (b) Supply Cables

1. Any supply cables, carried on effectively grounded suspension strands, where the voltage between conductors is more than 750 volts.

### 2. VERTICAL CLEARANCES

#### (a) Above Ground or Track Rails

Minimum vertical clearances of communication cables or conductors, trolley feeders and trolley contact conductors above ground or track rails, at 60° F and no wind in span lengths not to exceed 150 feet, shall be in accordance with the following table:

Nature of Ground or Rails Underneath Wires	Trolley, 0-750 Volts		
	Communication Cables or Conductors (Feet)	Feeders (Feet)	Contact Conductors and Associated Span Wires (Feet)
<b>CROSSING OVER RAILROAD TRACKS</b>			
<i>Of Railroads Handling Freight Cars on Top of Which Men Are Permitted:</i>			
In General.....	27	27	22
Where the Joint Line is Paralleled by Trolley Contact Conductors on Same Street or Highway.....	25	25	22
<i>Of Other Railroads.....</i>	18	18	18
<b>CROSSING OVER OTHER TRAVELED WAYS</b>			
<i>Streets, Alleys or Roads.....</i>	18	18	18
<i>Driveways to Residence Garages.....</i>	10	10	18
<b>Spaces or Ways Accessible to Pedestrians Only:</b>			
In General.....	10	15	16
Cables or Conductors Limited to 0-160 Volts and 0-50 Watts.....	8	..	..
<b>RUNNING ALONG STREETS, ALLEYS OR ROADS</b>			
<i>In Urban Districts:</i>			
In General.....	18	18	18
<i>In Rural Districts:</i>			
In General.....	15	15	18
Where No Part of the Line Overhangs Any Part of the Highway Which is Ordinarily Traveled, and Where It Is Unlikely that Loaded Vehicles Will Be Crossing Under the Line.....	13	15	18
<i>In Urban or Rural Districts:</i>			
<b>Spaces or Ways Accessible to Pedestrians Only:</b>			
In General.....	10	12	16
Cables or Conductors Limited to 0-160 Volts and 0-50 Watts.....	8	..	..

For spans exceeding 150 feet the clearances in the above table shall be increased as follows:

1. At railroad crossings where the nearer crossing support is more than 75 feet from the farthest track rail, the increase shall be 0.2 foot for each 10 feet of the excess over 75 feet. See 3 below.
2. At other points where the span length is over 150 feet, the increase shall be 0.1 foot for each 10 feet of the excess over 150 feet. See 3 below.
3. These clearance increases need not exceed 2.5, 4 and 5 feet for heavy, medium and light loading areas, respectively.